NORTHRUP EXHIBIT O

[signature]

@ Cetus w/ Mila Ching

PCR Rxns on micro heaters 35 Ω heaters
Volume ~ 25 μl volume wells

1) Standard rxns 20, 20, 30, 40 μl

20, 30, 40 μl w/ graphite pencil tips

~ 60 μl oil in each

wafer temp: max °C = 45 — min °C 42

2) Device : ~ 60 μl rxn mixture
~ ~~excess~~ excess oil

~~glued~~ glued on falcon tube top

Cycling w/ 7.7 volts } 1.5 W
200 mA

oil warms up? { uptime ≈ 47 sec | 29 sec = 21st cycle
down : 23 sec | 15 sec = " "

- Thermocouple touching membrane center
- Type (?)
- Diameter .005" = 100 μm
tip ≈ 200 μm

poly = ~~[illegible]~~ thickness 0.6 μm
alumin : 0.3 μm

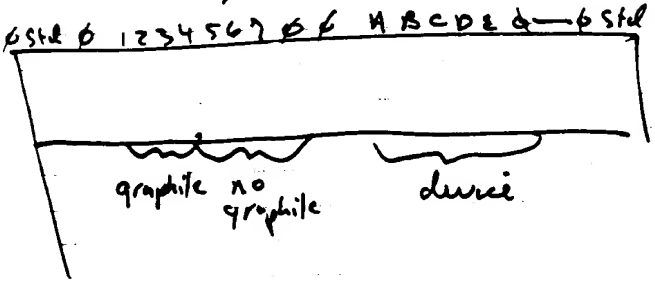
Cont

M. Allsopp

- 30 cycles completed on device

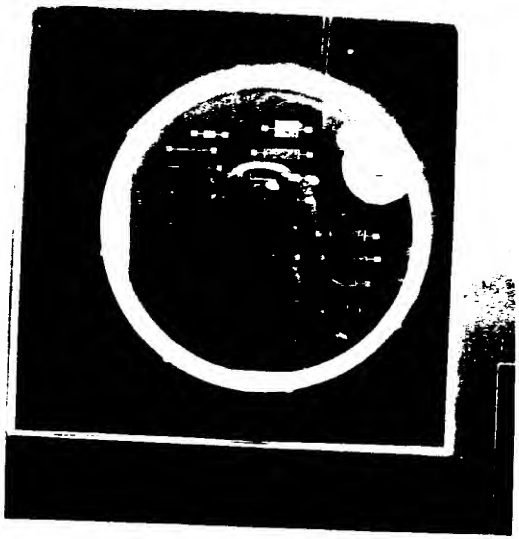
- 25 cycles on standards

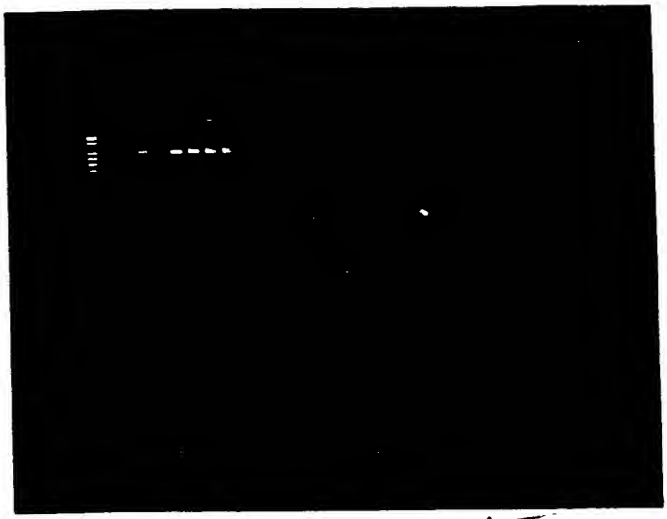
Gel:



1	20 µl	of graphite	25 cycles
2	30		
3	40		
4	20 µl	of/out graphite	
5	20		
6	20		
7	40		

A - E = device = 30 cycles





F. 4.5 1 kb 300 bp

M. Allen Northrup

Results:

- Graphite did not have a significant effect (lanes 1-3)

- Primer Dimer formed (in wells lanes 9-11)
  due probably to not reaching high enough T for lambda to denature
  - note this system has 2-base overlap which is lent toward primer-dimer formation
  - evidence for steep T-gradient
  - Try higher T (4°) longer 1 min.